

Patent claims

1. Filter cartridge (1) with a filter material containing cartridge container (6) with bottom wall (2) and peripheral wall (3) and with a lid (10), which durably shuts the cartridge container (6), comprised of a lid bottom (11) and a stripe-shaped lateral wall (16), with a form matching according to its border, which is fitted at the inner side of the peripheral wall (3), **characterized in that**

the lid bottom (11) merges with the lateral wall (16) in the direction of the peripheral wall (3) along an inward curved edge section (14), whereby the curved edge section (14) and the stripe-shaped lateral wall (16) join in a common wall section (15), tapering inwards, in the area with the matching form.
2. Filter cartridge as claimed in claim 1, **characterized in that** the lateral wall (16) is connected with the curved edge section (14) tangentially.
3. Filter cartridge as claimed in claim 1 or 2, **characterized in that** the common wall section (15) forms the lower wall section (18) of the lateral wall (16).
4. Filter cartridge according to one of the claims 1 to 3, **characterized in that** the curved edge section (14) extends up to the inner end of the stripe-shaped lateral wall (16).
5. Filter cartridge according to one of the claims 1 to 4, **characterized in that** the curved edge section (14) has a mean edge radius of curvature R , which satisfies $R \geq 5 \times S$, whereby S indicates the thickness of the peripheral wall (3) of the cartridge container (6).

6. Filter cartridge according to one of the claims 1 to 5, **characterized in that** the curved edge section (14) spans an angle α from 80° to 100°.
7. Filter cartridge according to one of the claims 1 to 6, **characterized in that** the side wall (16) has an upper wall section (17), which extends upward from the common wall section (15) at least up to height of the lid bottom (11).
8. Filter cartridge according to claim 7, **characterized in that** the upper wall section (17) of the side wall (16) and the curved edge section (14) border on their outer side with a ring space (5) with a wedge-shaped cross section.
9. Filter cartridge according to one of the claims 1 to 8, **characterized in that** a back-up ring (20) is arranged in the lid (10).
10. Filter cartridge according to 9, **characterized in that** at least the bottom contour of the back-up ring (20) is built such that it is complementary to the outer contour of the lid (10).
11. Filter cartridge according to one of the claims 9 or 10, **characterized in that** the back-up ring (20) does not fill the wedge-shaped ring area (5) completely.

12. Filter cartridge according to one of the claims 9 to 11, **characterized in that** between the back-up ring (20) and one of the common wall sections (14') of the curved edge section (14) bordering on the wall section (15), there is a slit-shaped recess (30).
13. Filter cartridge according to one of the claims 1 to 12, **characterized in that** at least one section (19) of the common wall section (15) is laser welded with the peripheral wall (3)
14. Filter cartridge according to the claim 13, **characterized in that** the section (19) is glued or butt-welded with the peripheral wall (3) .
15. Filter cartridge according to one of the claims 1 or 14, **characterized in that** the material of the cartridge container (6) is transparent to laser light and at least the material of the lateral wall (16) of the lid (10) is absorptive to laser light.

[see source for figures]